

**WHAT IS CLAIMED IS:**

1           1.    A method of identifying a superframe boundary  
2 comprising:

3                summing data vectors for each symbol in a plurality of  
4 superframes;

5                determining the summed data vector having the largest  
6 magnitude; and

7                indicating the superframe boundary at the symbol position  
8 correlating to the largest summed data vector.

1           2.    The method of Claim 1, further comprising  
2 synchronizing a plurality of modems based on the superframe  
3 boundary.

1           3.    The method of Claim 1, further comprising  
2 representing data tones for each symbol as the data vectors.

1           4.    The method of Claim 3, further comprising combining  
2 the data tones of each symbol across the plurality of  
3 superframes.

1           5.    The method of Claim 1, further comprising converting  
2 the summed data to power.

1           6.    The method of Claim 5, further comprising comparing  
2           a current summed vector with previous summed vectors.

1           7.    The method of Claim 6, further comprising setting a  
2           boundary flag when the current summed vector is greater than  
3           all the previous summed vectors.

1           8.    The method of Claim 6, further comprising  
2           identifying a synchronization symbol based on the position of  
3           the boundary flag.

1           9.    A method of aligning modems comprising:  
2           identifying the position of a synchronization symbol in a  
3           superframe; and

4           aligning the symbols of each modem based on the position  
5           of the synchronization symbol.

1           10.   The method of Claim 9, further comprising  
2           determining a summed vector having the largest value to  
3           identify the position of the synchronization symbol.

1           11.   The method of Claim 10, further comprising  
2           communicating between each modem using discrete multitone  
3           (DMT) symbols.

1           12.   The method of Claim 11, further comprising  
2           converting the DMT symbols into data vectors.

1           13. The method of Claim 10, further comprising combining  
2 the data vectors over a plurality of superframes to create the  
3 summed vector.

1           14. A communication system comprising:  
  
2           a plurality of modems which communicate using a plurality  
3 of superframes, each of the plurality of superframes having a  
4 plurality of symbols; and

5           a synchronizer which identifies the position of the  
6 superframe boundary, wherein the plurality of modems align  
7 based on the superframe boundary.

1           15. The communication system of Claim 14, wherein the  
2 plurality of modems are ADSL modems.

1           16. The communication system of Claim 14, wherein the  
2 synchronizer determines the position of a synchronization  
3 symbol of the superframes.

1           17. The communication system of Claim 16, wherein the  
2 synchronizer compares a summed data vector of each symbol of  
3 the plurality of superframes.

1           18. The communication system of Claim 17, wherein the  
2 symbol position having the summed data vector with the largest  
3 value is the synchronization symbol position.

1           19. The communication system of Claim 14, wherein the  
2 plurality of modems communicate using discrete multitone  
3 symbols.

1           20. The communication system of Claim 14, wherein one of  
2 the plurality of modems communicates with a central office.